

271.2
S/190/61/00/0011/014-016
B110/B147

Polymerization of styrene and

agents (without metals of variable valency). Monoethanolamine, dioxy-
acetone (V), sodium bisulfite, and the bisulfite compound of acetone were
additional reducing agents. Their effect was investigated with systems
of two HP of different initiating activity and two complex compounds of
bivalent iron. The ratio hydrocarbons (70 % by weight of styrene, 30 % by
weight of butadiene) : water was 1 : 4. 2-8 % by weight of emulsifier
(Nekal, Mersolate) were used. Optimum rate of polymerization was
established at 0.34 % by weight of HP I and 0.2 % by weight of HP II
(related to monomer). At the copolymerization butadiene-styrene by means
of HP I + III, the optimum rate of polymerization was established for
 $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ and $\text{Na}_4\text{P}_2\text{O}_7 \cdot 10\text{H}_2\text{O} = 0.75 : 1$. Increase of the concentration of

III from 0.35 to 0.70 moles/mole of HP I accelerates the process
considerably. After 4 hr. the polymer yield increases to ~ 48 % at an
increase of III from 0.2-0.35 moles/mole of hydrogen peroxide, and to 65 %
at a further increase. At 5°C, additional reducing agents hardly affect
the rate of polymerization. At 20°C, addition of V to I + III causes
polymerization acceleration and 75 % monomer conversion after 3 hr. which
is only 40 % without V. In the system II and III, optimum polymer yield
is achieved at 1.5 moles of III per mole of HP II. For IV, an optimum yield

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ACCESSION NR: AP4012181

S/0191/64/000/032/0003/0005

AUTHORS: Abkin, A. D.; Auer, A. L.; Bregor, A. Kh.; Gerasimov, V. I.; Voropayev, Yu. V.; Gol'din, V. A.; Osipov, V. B.; Syrkus, K. I.; Ushakov, V. D.; Khramov, P. M.; Tsingister, V. A.; Abkin, Yu. A.

TITLE: Radiation polymerization of ethylene in enlarged laboratory apparatus.

SOURCE: Plasticheskiye massy*, no. 2, 1964, 3-6

KEY TAGS: ethylene, radiation polymerization, reactor design, reactor surface area, reaction rate, polymer yield, reactor temperature field

ABSTRACT: Radiation polymerization of ethylene was conducted in laboratory reactors of 1-2 liter capacity (fig. 1 & 2). Based on tolerances admitted in this work, it was found that the temperature field can be calculated with sufficient accuracy. Comparison of reaction rates and yield of ethylene polymer shows that these factors are independent of the specific surface of the reaction space. Thus

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ACCESSION NR: AP4012181

commercial scale apparatus can be designed by estimating the process rate and yield dependence on pressure, temperature and dosage rate without concern for specific surface area of the reactor.
Orig. art. has: 1 Table and 5 Figures

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 26Feb64

ENCL: 02

SUB CODE: MA

NR REF SOV: 005

OTHER: 003

Card 2/42

USHAKOV, V.D.; MATVEYEVA, A.V.; SLOVOKHOTOVA, N.A.; KHOMIKOVSKIY, P.M.;
ABKIN, A.D.

Radiation polymerization of diketone in the solid and liquid states.
Vysokom.sped. 7 no.7:1165-1170 J1 '65.

(MIRA 18:8)

1. Fiziko-khimicheskiy institut imeni Karpova.

ROMANETS, R.G.; ALYAB'YEV, V.A.; USHAKOV, V.F.; BOBYL', V.G.

Cryostat for investigating the electric, photoelectric, and optical properties of liquids. Zav. lab. 31 no.9:1091 '65. (MIRA 18:10)

1. Dnepropetrovskiy inzhenerno-stroitel'nyy institut.

USHAKOV, V.G.

Rabies of dogs and Pasteurian antirabic vaccinations. *Trudy Lav.*
inst.epid. i mikrobiol. 9:202-222 '47. (MLA 10:9)

1. Iz antirabicheskogo otdela Instituta im. Pastera (zav. otd.
S.A. Baranovskaya)
(RABIES--PREVENTIVE INOCULATION)

USHAKOV, V.G.; BARANOVSKAYA, S.A.; SOLOV'YEV, N.N.

Work at the Leningrad Pasteur Station during the period of war and blockade and outlook for possible activities of the Station in the postwar period. Trudy Len. inst. epid. i mikrobiol. 9:247-253 '47.
(MIRA 10:9)

(LENINGRAD--RABIES--PREVENTIVE INOCULATION)

USHAZ V. V.G., doktor teletainiki, dok

Bibliography: Russian works on rebea (1917-1918) (1919-1920)
Int. spid. (1921-1922) (1923-1924) (1925-1926) (1927-1928)
(BIBLIOGRAPHY 1919-1928)

USHAKOV, V.G., kandidat tekhnicheskikh nauk

Selection of the rate of brine circulation in a freezing core.
Gidr.stroi.24 no.6:41-42 '55.

(MIRA 8:12)

(Soil freezing)

SOV/112-57-9-18363

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1957, Nr 9, p 34 (USSR)

AUTHOR: Ushakov, V. G.

TITLE: Intensifying Heat Exchange in Steam-Turbine Oil Coolers
(Intensifikatsiya teploobmena v maslookhladitelyakh parovykh turbin)

PERIODICAL: Tr. Novocherkas. politekhn. in-ta, 1956, Nr 33/47, pp 102-106

ABSTRACT: To intensify heat exchange in tube-type oil coolers of steam turbines, it is necessary to increase the heat transfer factor, which depends mainly on the oil-tube transfer. The latter can be increased by a higher rate of oil flow. A small remodeling of an oil system with weight-type centrifugal regulator and with one high-pressure oil pump (the arrangement most frequently used in Soviet steam-turbine plants) permits considerable increase in oil rate-of-flow without increasing the energy necessary for oil pumping. Experiments staged with oil coolers of various constructions have corroborated the possibility of increasing the heat-transfer factor 2-3 times by increasing the oil rate-of-flow up to 2 m/sec. The increased pressure difference is still practically acceptable because a part of it can be shifted from the reduction valve over to the oil cooler.

Card 1/I

B. Ya. Z.

15-57-4-5437

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 4,
p 189 (USSR)

AUTHOR: Ushakov, V. G.

TITLE: The Effect of Internal Heat Exchange in the Work of a
Refrigerating Column (vliyaniye vnutrennego teploobmena
na rabotu zamorazhivayushchey)

PERIODICAL: Tr. Novocherkas. politekhn. in-ta, 1956, Nr 33/47,
pp 107-114.

ABSTRACT: The author describes the freezing of soil by means of
a refrigerating column. The heat transfer in the column
is examined for short intervals of time during which the
principal characteristics of the process may be con-
sidered constant. The investigation was confined to the
conditions 1) that the soil along the entire length of
the drill hole is uniform, and 2) that the heat is dis-
tributed only along planes perpendicular to the axis of
the column; this assumption leads to the consequence

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· The Effect of Internal Heat Exchange in the Work (Cont.) 15-57-4-5437

that the length of the column is very much greater than the thickness of the wall of ground ice which should form in artificial freezing of the ground by means of a refrigerating column. The effect of internal heat exchange is studied in relation to the heat discharge of the column and to the form of the ground wall. Calculations according to proposed formulas show that at a velocity for brine movement of 4 to 6 cm/sec the length of the column corresponding to the conditions of formation of a cylindrical ground-ice wall is 70 cm to 80 cm. With increased velocity this value grows very rapidly. The author notes that, because of the nonstationary process of ground freezing, the conditions of heat transfer change with time. To guarantee the formation of a cylindrical or conical ground-ice wall, the ratio of the coefficient of heat-transfer to the proposed formulas should be calculated for the worst conditions. i.e., for the maximum thickness of frozen soil.

Card 2/2

A. M. Ch.

AUTHORS: Dorofeyev, B.G., Lozanovskiy, A.L., Engineers and 110-58-5-3/25
Meyerovich, Sh.S., Ushakov, V.G., Candidates of
Technical Sciences

TITLE: The Cooling of Tape-wound Starting Resistances Type KF
(Ob okhlazhdenii lentochnykh puskovykh soprotivleniy
tipa KF)

PERIODICAL: Vestnik Elektromyshlennosti, 1958, Vol 29, Nr 5,
pp 9 - 12 (USSR).

ABSTRACT: Resistance-alloy tape-wound resistances, type KF, are used as starting resistances in electric locomotives, type N8 and VL-23 and in motor coaches, trolley buses, etc. They are cooled by free or forced-air circulation and are appreciably lighter, smaller and cheaper than cast-iron resistances. However, they are not widely used because inadequate information is available about their thermal rating. The Novocherkassk Polytechnical Institute and the laboratory of the electric locomotive works made an experimental study of the cooling of the resistances. They consist of assemblies of standard resistance elements. An individual element, illustrated in Figure 1, consists of resistance-alloy ribbon wound on edge to form a coil which is insulated from its channel-shaped supporting bar by 2 segmental porcelain insulators.

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The Cooling of Tape-wound Starting Resistances, Type KF

The rate of air flow and the aspect of the element in relation to the flow have an important bearing on the rating. It is known from operating experience that the highest local temperature should not exceed 450°C , or else the porcelain insulators crack. It was required to find the relationship between the permissible loading and the air speed.

Thermocouples were used to determine the temperature of the element at different places. The air speed ranged from 0 - 18 m/sec. The current was so chosen that the highest local temperature did not exceed 350°C . In one arrangement, the porcelain insulators were arranged head-on to the air stream, as shown in Fig. 3a, which is the usual arrangement. The arrangement of 3b, in which the insulators are edge-on across the stream, was also tested. In both cases, the outer edges of the resistance elements were found to be better cooled than the inner. Thus, the conditions of cooling are not greatly changed when the element is turned through 90° . Also, under a wide range of conditions, the maximum temperature is on the leeward side of the coils. For example, with an air flow of 15 m/sec and a current of 142 A, the temperature of the leeward parts of the spiral was 382°C , the top and bottom were at

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The Cooling of Tape-wound Starting Resistances, Type KF 110-58-5-3/25

142 °C and the windward side 90 °C. Holes were than made in the supporting bars to reduce the temperature of the leeward side of the coils. The holes occupied 20% of the area of each bar. With this arrangement the cooling was much more uniform and the current rating could be increased. The relationship between the rate of air flow and the permissible current in the element, in the two alternative positionings described above, are shown in Figure 4.

Tests were next made on a complete starting-resistance assembly consisting of four rows of seven elements each. Measurements were made of air flow, coil temperatures and power. Once again, the middle of the elements was hottest. The temperature difference between the windward and leeward parts of a coil was 100 °C. The third row of elements was the hottest, and showed the highest temperature on its leeward side but the porcelain insulators did not get too hot. A graph of the relationship between the permissible current and the rate of air flow for a maximum temperature of 350 °C is given in Figure 5. In addition to the usual assembly with the elements arranged one behind the other, a staggered honeycomb arrangement was tried, the size of the box and

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The Cooling of Tape-wound Starting Resistances, Type KF

the number of elements being unchanged. Again holes were drilled in the bars. The performance graphs plotted in Fig.5 show that the rating is higher with the honeycomb than with the usual square arrangement. With an air flow of $45 \text{ m}^3/\text{min}$, the permissible current for the standard box is 46.75 A but in the modified assembly it was 51.9 A . This applies only with forced cooling; with natural ventilation the honeycomb arrangement is not so good. A number of tests were also made under conditions of transient loading to determine the time different loads take to produce a temperature of 350°C . The honeycomb arrangement was used and the results given in Figure 6, show that the resistances take about an hour to reach a steady temperature with the normal rated current, although cast-iron elements take still longer. Starting from cold, the resistances can carry up to three times rated current for 5 minutes. Under transient conditions, the rate of forced ventilation is important only for light currents. With currents of the order of 60 A and air-flow rates up to $20 \text{ m}^3/\text{min}$, the permissible time of operation is 4 - 6 min and is practically independent of the rate of air flow.

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The Cooling of Tape-wound Starting Resistances, Type KF 110-58-5-3/25

There are 6 figures.

ASSOCIATIONS: Novocherkasskiy politekhnicheskiy institut
(Novocherkassk Polytechnical Institute) and
Novocherkasskiy elektrozostroitel'nyy zavod
(Novocherkassk Electric Locomotive Works)

SUBMITTED: June 24, 1957

Card 5/5

S/081/60/000/018/003/009
A006/A001

11.9200

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 18, p. 303, # 77661

AUTHOR: Ushakov, V. G.

TITLE: Heat Exchange²¹ in Field's (Fil'd) Tubes at a Constant Temperature of the External Heat Carrier

PERIODICAL: Tr. Novosherk. politekhn. in-ta; 1959, Vol. 88, pp. 43-74

TEXT: An analytical investigation was made of heat exchange in Field's tubes when introducing a liquid through the internal tube or through an annular duct at a constant temperature of the external heat carrier. It was established that the method of introducing the liquid did not affect the heat efficiency of the Field tube. The internal heat exchange in the Field tube causes an increase in the heat exchanger dimensions. This is connected with a decrease in the mean difference of the heat carrier temperatures. The degree of increase in the Field tube dimensions is determined by the Z/Z_{limit} ratio where $Z = K_1/K_2$, $Z_{\text{limit}} = (A^2 - 1)/4$; $A = 2 [T - 0.5 (t_1 + t_2)] / (t_2 - t_1)$; K_1, K_2 are the coefficients of heat transfer for the internal and external tubes; t_1, t_2 are the temperatures of the heat carrier at the inlet and outlet of the Field tube. The internal

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S/081/60/000/018/003/009
A006/A001

Heat Exchange in Field's (Fil'd) Tubes at a Constant Temperature of the External Heat Carrier

heat exchange affects considerably the distribution of the heat flux along the Field tube; by varying Z and the spot of the liquid inlet, a considerable increase or decrease of the heat flux can be assured along the Field tube, approaching a distribution corresponding to optimum conditions of heat exchange.

Yu. Petrovskiy

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

USHAKOV, V.G.

Heat exchange in Field's tubes in cases of internal heat
sources. Trudy NPI 106:33-36 :60. (MIRA 15:5)
(Heat-Transmission) (Chemical reactors)

USHAKOV, Viktor Ivanovich

N/5
773
.02

Kreditovaniye Torgovykh Organizatsiy (The Financing of Commercial Organizations) Moskva, Gosfinizdat, 1956.
62 P. Tables.

USHAKOV, V.I.

Structural and system isomorphisms of nonperiodic locally nilpotent groups. *Izv.vys.ucheb.zav.; mat.* no.1:223-226 '57.
(MIRA 12:10)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Groups, Theory of)

615 HAKOV, V.I.

PHASE I BOOK ICH SOV/3556

Moscow, Inzhenerno-fizicheskiy institut

Nekotoryye voprosy eksperimental'noy fiziki: [atomi]k vop. 2
(Some Problems in Experimental Physics: Collection of Articles,
No. 2) Moscow, Atomizdat, 1959. 123 p. 3,200 copies printed.

Sponsoring Agency: RSPSR, Ministerstvo vysshego i srednego
spetsial'nogo obrazovaniya.

Ed.: B.M. Stepanov, Doctor of Physical and Mathematical Sciences,
Professor; Tech. Ed.: S.M. Popova.

PURPOSE: This collection of articles is intended for graduate
engineers and physicists engaged in the design of physics
(laboratory) apparatus, and automatic and telemechanic equipment.

COVERAGE: This collection of articles on experimental physics was
written by members of the Moscow Physics and Engineering Insti-
tute. Each article is accompanied by drawings and references.

Dolgoshchin, B.A., B.L. Lukin, and V.I. Lukin. Operation of
Gas-Dynamic Counters During Over-Modulation. 33

The authors deal with the results of a study of the operation
of the MS-9, OS-9, and GS-30 standard counters under controlled
pulse feed operating conditions. The dependence of ionization
memory on pulse feed conditions was studied and a reliable
method of retaining discharge propagation speed along the coun-
ter electrode is described.

Vlasov, A.D. Impact Compensating the Effect of Intersection
Gaps in a Linear Proton Accelerator. 40

The problem of compensating the undesirable effect of inter-
section gaps on the longitudinal positions of particles in a linear
proton accelerator is discussed.

Imbova, I.Ye. Calculating the Profiles of Magnetic Poles
The Article Describes a method of computing profiles of the
poles of magnetic windings of current filaments for a given
field distribution in the plane of symmetry (the fringe effect
is not taken into account). 50

Malov, A.P. Some Ionic Optical Properties of Static Axially
Symmetrical Magnetic and Electric Fields. 51

The author reports on the nonlinear study of the ionic optical
properties of (static), axially symmetrical, defocused, three elec-
trode fields with radial and focusing and edges
of arbitrary form.

Vorob'yeva, M.A. Sensitivity of the Glowing Det Method
Million-Baronova, V.G., B.A. Dolgoshchin, and M. Khochimova, L.P.
Mokhov. Separation of Molecules With a Field of Acoustic Waves
in a Gas. 60

Dolgoshchin, B.A. and B.I. Lukin. Polarization of Flow of A-
ions at Sea Level. 62

Petrushchev, V.I. Heat Transfer Between Turbulent Boundary Flows
in the Presence of a Magnetic Field. 66

The author has obtained experimental results on heat transfer of
boundary flows in the presence of a magnetic field. The results are
presented in the form of graphs and tables. The author also
discusses the effect of the magnetic field on the heat transfer
coefficient.

Erkova, M.V. The Effect of a Magnetic Field on the Heat Transfer
Coefficient. 68

Vlasov, A.D. and V.I. Lukin. The Effect of a Magnetic Field on
the Heat Transfer Coefficient. 70

Vlasov, A.D. and V.I. Lukin. The Effect of a Magnetic Field on
the Heat Transfer Coefficient. 72

Vlasov, A.D. and V.I. Lukin. The Effect of a Magnetic Field on
the Heat Transfer Coefficient. 74

Vlasov, A.D. and V.I. Lukin. The Effect of a Magnetic Field on
the Heat Transfer Coefficient. 76

USHAKOV, V.I.

R-radical groups. Izv. vys. ucheb. zav. mat. no. 6:233-238
'60. (MIRA 14:1)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Groups, Theory of)

VOL'FSON, I.M., inzh.; MAUMOV, M.K., inzh.; USHAKOV, V.I., inzh.

Remote controlled coordination device for static blowing through
profiles of blades. [Trudy] LNZ no.6:464-470 '60. (MIRA 13:12)
(Turbines—Aerodynamics)
(Electric instruments)

S/123/61/000/010/013/016
A004/A104

AUTHORS: Vol'fson, I. M.; Nausov, M. K., and Ushakov, V. I.

TITLE: Remote-controlled coordinator for the static blowing through of the blade profiles

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 10, 1961, 17, abstract 10I134 (V sb.: Issled. elementov parovykh i gaz. turbin i osevykh kompressorov. [Tr. Leningr. metallich. z-da, 6]. Moscow-Leningrad, Mashgiz, 1960, 464-470)

TEXT: The authors describe the coordinator, its mechanical part, the control panel and electric circuit. Service tests showed the necessary control accuracy of the displacements of the devices during the tests (linear displacements ± 0.1 mm, rotary movements $\pm 0.1^\circ$). The system makes it possible to improve the working conditions of the laboratory staff and increase the quality of tests. There are 4 figures.

[Abstractor's note: Complete translation]

Card 1/1

KISELEV, V.I., prof., doktor tekhn. nauk; NIKULIN, V.B., kand. tekhn. nauk; USHAKOV, V.I., inzh.

Removal of water in pneumatic mine networks under permafrost conditions. Gor. zhur. no.7:48-50 J1 '63. (MIRA 16:8)

1. Moskovskiy institut stali i splavov.

S/058/61/000/010/024/100
A001/A101

AUTHORS: Dolgoshein, B.A., Luchkov, B.I., Ushakov, V.I., Asatiani, T.L.,
Krishchan, V., Matevosyan, Ye., ~~Shakhmatunyan~~, R.

TITLE: On polarization of μ -mesons of cosmic radiation

PERIODICAL: Referativnyy zhurnal. Fizika, no. 10, 1961, 97-98, abstract 10B516
("Tr. Mezhdunar. konferentsii po kosmich. lucham, 1959, v. 1", Mos-
cow, AN SSSR, 1960, 319 - 321)

TEXT: Polarization of μ -mesons was determined from asymmetry of angular
distribution of positrons at stops and decays of μ -mesons in copper. The μ -
mesons with momenta of 0.35; 1.05; 1.5, and 2.0 Bev/c were measured. The res-
pective values of polarization are as follows: 0.21 ± 0.08 ; 0.35 ± 0.087 ; $0.52 \pm$
 ± 0.083 and 0.50 ± 0.09 . The relation obtained between the polarization degree of
 μ -mesons and their momenta is briefly discussed. ✓

L. Dorman

[Abstracter's note: Complete translation]

Card 1/1

USHAKOV, V. I., ASATIANI, T. L., BETEZINSKIY, L. S., BOLOCHNEINE, B. A.,
LUGHKOV, B. I., KRISHCHYAN, V. M., MATEVESYAN, YE. M., SHAKHATUNYAN, R. O.
Alikhanyan, A. I., Asatani, T. L.

"Polarization of Cosmic Ray Muons."

report submitted for the Intl. Conf. on Cosmic Rays and Earth Storm (IUPAP)
Kyoto, Japan 4-15 Sept. 1961.

S/823/62/000/000/004/007
B125/B102

AUTHORS: Dolgoshein, B. A., Luchkov, B. I., Ushakov, V. I.
TITLE: Study of the polarization of positive muons in cosmic rays
SOURCE: Nekotoryye voprosy fiziki elementarnykh chastits i atomnogo yadra. Ed. by V. D. Mikhaylov and I. L. Rozental'. Mosk. inzh.-fiz. inst. Moscow, Gosatomizdat, 1962, 83-90

TEXT: The polarization of a current of high-energy muons was studied with a view to elucidating how they are produced in the upper atmosphere. Their degree of polarization is most conveniently determined by measuring the angular distribution of decay positrons from a muon stopped inside a cylindrical target. The experimental arrangement is shown in Fig. 1. $7798\mu \rightarrow e^+$ decays were recorded within 5200 hrs at muon energies of 0.3, 1.05, and 1.55 Bev, and for each case the positron angular distributions were measured. Using the method of least squares, the quantity $b\eta$ in the equation $f(\theta) \sim 1 - b\eta \cos\theta$ (θ = projection of the angle between positron direction and muon direction onto the perpendicular plane) is calculated from these angular distributions. The factor b depends on the parameters of

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Study of the polarization of...

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the experimental arrangement and on the characteristics of the $\mu^+ \rightarrow e^+$ decay (positron spectrum, range-to-energy ratio of the positrons). At the instant of muon production, their polarization is given by $\eta^* = \eta / K_{\text{atm stop}}$, where η is the degree of polarization, and $K_{\text{atm}} \sim 0.95$ is the coefficient of depolarization in the atmosphere; the coefficient K_{stop} allows for the possible depolarization of the muon after stopping. Accelerator experiments indicated that $K_{\text{stop}} = 1$. For 0.3 BeV, $\eta^* = 0.30 \pm 0.06$ and $\eta' = 0.24$; for 1.05 BeV, $\eta^* = 0.40 \pm 0.08$ and $\eta' = 0.33$; for 1.55 BeV, $\eta^* = 0.40 \pm 0.05$ and $\eta' = 0.335$. η' is the degree of polarization to be expected from data of V. Berezinskiy and B. A. Dolgoshein (Zh. eksperim. i teor. fiz. 71, 42, 1084 (1962)). The difference between η^* and η' is obviously due to the effect of $K \rightarrow \mu$ decay on the production of muons at increasing energy. The resulting degree of polarization may be considerably affected even by very small amounts of muons produced in $K \rightarrow \mu$ events. The great significance of measuring the polarization of cosmic-ray muons at even higher energies is stressed. There are 4 figures and 1 table.

Card 2/3

S/120/62/000/001/018/061
E140/E463

AUTHORS: Dolgoshein, B.A., Luchkov, B.I., Ushakov, V.I.
TITLE: Pulse hodoscope for muon decay investigations
PERIODICAL: Priory i tekhnika eksperimenta, no.1, 1962, 85-89
TEXT: The instrument described here is intended for the study of the polarization of cosmic μ^+ mesons, by recording the particle trajectories in $\mu \rightarrow e$ decay. The method is to determine the ratio of decay positrons emerging from an absorber in the forward and backward hemispheres. Gas counters are used with pulsed overvoltage. This permits defining the times at which neon-triode indicator tubes operate in the cycle of events associated with the decay. The arrangement is best illustrated with reference to Fig.1. Here rows A_1 , A_2 and A_3 consist of argon-methylal counters specially produced in the laboratory (diameter 2 cm, length of sensitive volume 60 cm), the remaining rows consisting of standard Soviet geiger counters type $CH-6\Gamma$ (SI-6G). Row \square is the absorber, dimensions 70 x 140 x 2 cm³. Blocks B and C are intended for positron trajectory measurements, and are as symmetrical as possible. In addition,
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E140/E463

Pulse hodoscope for muon decay ...

they are attached to a mechanism permitting their rapid interchange (every two hours). The dc excitation of the counters in the hodoscopic rows A₁, A₂, A₃ and the B, C blocks was selected to enable an arc discharge to arise after passage of an ionizing particle by application of very short ($\sim 0.1 \mu s$) pulse over-voltages, with an efficiency of $\sim 100\%$. By terminating the pulse excitation of the hodoscope tubes before applying that of the positron detection blocks B, C, the hodoscope tubes are not permitted to register the passage of positrons occurring during the time that B and C are excited. The pulse excitation of the hodoscope rows is triggered by a muon passage, while the positron blocks are triggered from 0.8 to 5.8 μs later. Rows S₁, S₂, S₃ are control rows, used for detecting the arrest of a muon in the absorber. The relationship between the dc and pulse excitation voltages in B, C, is such that the efficiency for charged particles passing through the counters during the pulse excitation is close to 100%, while very low ($\leq 10^{-7}$) for the passage of the muon which triggers the pulse supply. A block diagram and the counter-indicator circuits are given and discussed in some detail.

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Pulse hodoscope for muon decay ...

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An example of the records obtained is given. The photograph (Fig.3) indicates the arrival of a μ^+ , its absorption in Fe, and the emission of a positron during the interval 1.7 to 2.2 μ s. A time analyser associated with the hodoscopic instrument permits the muon lifetime to be determined, acting as a control on the hodoscope, and permits possible depolarization during the 5 μ s after arrest, giving the dependence of polarization on time. A series of control measurements was made to determine the asymmetry of the instrument with respect to the absorber. Iron was used to obtain full depolarization. Using 30 μ s delay, or operating without an absorber, the background (false $\mu \rightarrow e$ decay) was measured and found to be about 5×10^{-3} . The muon lifetime was found to be $2.19 \pm 0.04 \mu$ s, from measurements on the instrument. There are 3 figures.

ASSOCIATION: Fizicheskii institut AN SSSR
(Physics Institute AS USSR)

SUBMITTED: April 18, 1961

Card 3/5

24 6610
S/048/62/026/006/002/020
B125/B112

AUTHORS: Dolgoshein, B. A., Luchkov, B. I., and Ushakov, V. I.
TITLE: Polarization of cosmic muons of different energies
PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26,
no. 6, 1962, 711 - 712

TEXT: Polarization measurement in the energy range 0.2 - 1.55 Bev is studied. A preliminary report has already been given at the Mezhdunarodnaya konferentsiya po kosmicheskim lucham (International Conference on Cosmic Rays) Moscow, 1959. The degree of polarization was determined from the decay asymmetry when a muon was slowed down in a copper target surrounded by an array of Geiger counters (in rectangular or cylindrical arrangement). The background is practically eliminated by photographic fixing of the muon and positron trajectories for each single $\mu^+ \rightarrow e^+$ -decay. In this way cases can easily be identified. Measurement of the decay positrons with the rectangular experimental arrangement permits an additional control and confirms that the muon is not depolarized after slowing down in the target. The check measurements on an

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Polarization of cosmic muons...

S/048/62/026/006/002/020
B125/B112

iron target confirm the symmetry of the rectangular experimental arrangement. At sea level, photographic pictures of approximately 40,000 $\mu \rightarrow e$ -decay events were taken at muon energies 0.2; 0.3; 0.55; 1.05; 1.4 and 1.55 Bev. From these data the degree of polarization was calculated with the aid of the "Ural" computer. If the muon energy increases from (0.2 \div 0.5) to (1.4 \div 1.55) Bev, polarization increases (1.5 \pm 0.19) times and approximately agrees with the theoretical values of V. Berezhinskiy, B. Dolgophein, Zh. eksperim. i teor. fiz., 42, 949 (1962). There are 1 figure and 1 table. The most important English-language reference is: G. Clark, J. Hersil, Phys. Rev., 108, 1938 (1957).

Card 2/2

USHAKOV, V.I. (Moskva)

Classes of conjugate elements in topological groups.
Ukr. mat. zhur. 14 no.4:366-371 '62. (MIRA 15:12)
(Groups, Theory of)
(Topology)

USHAKOV, V.I.

Concerning a certain class of topological groups. Dokl. AN SSSR
144 no.1:65-68 My '62. (MIRA 15:5)

1. Predstavleno akademikom P.S. Aleksandrovym.
(Groups, Theory of) (Topology)

USHAKOV, V.I.

Topological groups close to bicomact groups. Sib. mat. zhur. 4
no.3:689-694 My-Je '63. (MIRA 16:6)
(Topology) (Groups, Theory of)

USHAKOV, V.I.

Topological \overline{FC} -groups. Sib. mat. zhur. 4 no.5:1162-1174 S-C
'63. (MIRA 16:12)

USHAKOV, V.I.

Topological groups with a normalizing condition for closed
subgroups. Izv. AN SSSR. Ser. mat. . 27 no.4:943-948
Jl-Ag '63. (MIRA 16:8)

(Algebraic topology) (Groups, Theory of)

USHAKOV, V.I. (Moskva)

Topological groups with bicomact classes of conjugate subgroups.
Mat.sbor. 63 no. 2:277-283 F '64. (MIRA 17:5)

USHAKOV, V.I.

Groups with a normalizer condition for closed subgroups. Izv. AN SSSR.
Ser. mat. 29 no.5:1055-1068 '65. (MIRA 18:10)

DOLGOSHEIN, B.A.; LUCHKOV, B.I.; USHAKOV, V.I.

Operation of gas-discharge counters at large pulse over-
voltages. *Nek.vop.eksp.fiz.*, no.2:32-39 '59.

(MIRA 13:2)

(Nuclear counters)

69074

S/120/60/000/01/009/051

21.5300

AUTHORS: Dolgoshein, B.A., Luchkov, B.I. and Ushakov, V.I.
 TITLE: Operation of Gas-discharge Counters at Large Pulsed
 Overvoltages ¹⁹

PERIODICAL: Pribery i tekhnika eksperimenta, 1960, Nr 1,
 pp 39 - 42 (USSR)

ABSTRACT: The experimental equipment used in the investigation described was as follows: a set of two G-M counters connected to a coincidence circuit were used to register cosmic particles. The resulting coincidence pulse operated a generator producing a supply pulse having a duration of 0.3 - 4.5 μ s and an amplitude up to 3 kV. The supply pulse was applied to the investigated counter which was situated between the two "coincidence" counters. The pulse generator was based on the circuit described in Ref 1 and also on a hydrogen-thyratron furnished with a forming line. The delay between the supply pulse and the instant of appearance of a particle could be varied from 0.7 to 50 μ s. The load of the counter was 30 k Ω . When the pulse duration was 0.3 μ s, the pulse was triangular and had a rise time of 0.1 μ s

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Operation of Gas-discharge Counters at Large Pulsed Overvoltages

and a decay of 0.2 μ s. At longer durations the shape of the pulse could be regarded as being rectangular, its rise time being 0.1 μ s. The above equipment was used to investigate the properties of the counters, types MS-9, GS-9 and GS-30. Figure 1 shows the amplitude characteristics of the counters, type MS-9 and the relative number of spurious discharges for a constant supply voltage which was 100 V higher than the Geiger threshold. Curve 1 in the figure represents the amplitude characteristic, while Curves 2 show the number of spurious discharges. It was found that the amplitude characteristics of the counters, types GS-9 and GS-30, are very similar to those of Figure 1, provided the test conditions are identical. The efficiency of a counter depends substantially on the delay of the supply pulse with respect to the appearance of the particle. The time during which the counter "remembers" the passage of a particle depends on the number of charges produced in the volume of the counter and the rate of their extraction. This effect

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is illustrated, for the counter type MS-9, in Figure 2. From this it is seen that the "memory" of the counter is about 5-6 μ s. The efficiency as a function of the supply voltage is plotted in Figure 3. From this it is seen that at a fixed delay time (6 μ s) the efficiency curve has a minimum. This can be explained as follows: The time determining the "memory" of the counter in the Geiger region consists of two components: the time necessary for the propagation of the charge along the wire and the time during which the positive ions recede from the wire sufficiently far for the probability of the ionisation by ions to be sufficiently small. Figure 4 shows the time characteristics of the counters MS-9 when the particles were passing through the middle of the counter (Curves 1 and 3) and through the end of the counter (Curves 2 and 4). It is seen that the "memory" times for the two cases are different. This permits evaluation of the velocity of the propagation of the discharge in the counter. It is found that the velocity is 2 cm/ μ s. The time characteristics for the counters type GS-30 are shown in Figure 5. From this,

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Operation of Gas-discharge Counters at Large Pulsed Overvoltages

it is seen that the "memory" time for the counters is 3-4 μ s. The time characteristics of the GS-9 counters are similar to those of Figure 5. The counters type MS-9 were also investigated at low DC voltages. The meaning of the term "low" signifies that the counters operated in the absence of gas-type amplification. The time characteristics for the counter taken with the pulse voltage of 1.9 kV are given in Figure 6. The authors make acknowledgment to A.A. Tyapkin and V.V. Vishnyakov for valuable advice. There are 6 figures and 2 Soviet references.

SUBMITTED: January 14, 1959

✓

Card 4/4

USHAKOV, V.I.

S/120/62/000/001/009/061
EO32/E514

AUTHORS: Borisov, A.A., Dolgoshein, B.A., Luchkov, B.I.,
Roshetin, L.V. and Ushakov, V.I.

TITLE: A study of spark-chamber characteristics

PERIODICAL: Priroda i tekhnika eksperimenta, no.1, 1962, 49-54

TEXT: The authors report the construction and the main characteristics of an experimental argon-filled spark chamber with a working volume of 0.5 litres. The spark chamber consists of four plane-parallel electrodes (150 x 70 x 5 mm³) separated by cylindrical teflon insulators. Gap lengths of 8, 10, 12 and 30 mm have been used (in the latter case there is only one gap). The chamber is filled with technical argon mixed with a small amount of ethyl alcohol to reduce spurious discharges. The chamber is gated by two arrays of Geiger counters, one above and one below the chamber. The coincidence pulse from these two arrays triggers a high-voltage pulse generator based on the hydrogen thyratron ТГН-1 (TGI-1) 325/16. The pulse produced by the generator has a rise time of about 30 nanosec and a decay constant of 10⁻⁷ sec; the amplitude is approximately equal to the

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A study of spark-chamber ...

S/120/62/060/001/009/061
E032/E51⁴

maximum anode voltage on the thyatron. The delay between the passage of the nuclear particle and the application of the high-voltage pulse to the electrodes is about 0.7 μ sec, most of which is associated with the operation of the hydrogen thyatron. A clearing field of up to 100 V/cm is applied to the plates. Fig.3 shows the dependence of the efficiency of the chamber on the amplitude of the high-voltage pulse for various gas pressures (zero clearing field, high-voltage pulse delay 0.7 μ sec, inter-electrode gap 10 mm). Data are also reported on the dependence of the efficiency on the high-voltage decay time, the amplitude and polarity of the clearing field and the high-voltage delay time. It is reported that particle tracks at angles up to 35° with the normal to the plates can be reliably recorded. There are 6 figures.

ASSOCIATION: Fizicheskii institut AN SSSR
(Physics Institute AS USSR)

SUBMITTED: February 16, 1961
Card 2/3

ACCESSION NR: AP4033121

S/0120/64/000/002/0104/0107

AUTHOR: Burgov, N. A.; Kiselev, Yu. T.; Ushakov, V. I.

TITLE: High-voltage impulse generators for spark chambers

SOURCE: Pribery* i tekhnika eksperimenta, ^{vol. 9.} no. 2, 1964, 104-107

TOPIC TAGS: spark chamber, high voltage impulse generator, surge generator, gas discharge chamber

ABSTRACT: Thyatron h-v impulse generators used for supplying spark or gas-discharge high-capacitance (5-8 nanof) chambers are briefly described. To obtain the spark-chamber resolving time of 500 nsec, a generator with overheated TG 1-400/16 thyratrons was tested. The thyatron firing delay was 110 nsec, and the h-v pulse rise time was under 15 nsec. The overheated thyratrons withstood 4×10^5 operations without impairment of the firing-delay or pulse-rise time. The firing delay was slightly higher with TG 1-700/25 thyratrons. The quickest

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impulse-generator operation was obtained with vacuum-spark VIR-5 relays used as generator switches. With these relays, the generator had a total delay of 160 nsec or less. Another generator, with TG1-50/5 thyratrons, exhibited a total delay of 220 nsec. "The authors are thankful to L. S. Eyg and V. S. Kaftanov for their useful advice and recommendation to use the vacuum spark relay." Orig. art. has: 3 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 13May63

DATE ACQ: 11May64

ENCL: 00

SUB CODE: NS

NO REF SOV: 002

OTHER: 001

Card 2/2

ACCESSION NR: AP4033140

S/0120/64/000/002/0163/0164

AUTHOR: Kiselev, Yu. T.; Ushakov, V. I.

TITLE: Glued spark chambers

SOURCE: Priory* i tekhnika eksperimenta, ^{vol. 9} no. 2, 1964, 163-164

TOPIC TAGS: spark chamber, glued spark chamber, epoxy glued spark chamber

ABSTRACT: Of carbonyl-type, L4, ED-5 epoxy, and ED-6 epoxy adhesives, the plasticized epoxy resin proved best for gluing parts of multisection spark chambers together. These chamber sections were made: 20 x 20 cm with inter-electrode spacings of 0.3 and 1 cm; sections of a 51 x 51 x 0.6-cm chamber; sections with conducting-glass 20 x 20 x 1-cm electrodes. The chambers were controlled by a scintillation-counter "telescope" which recorded charged cosmic particles. H-v 3-18-k, 0.2-microsec pulses and a constant clearing voltage of 0 ± 300 v were used. "In conclusion, the authors wish to thank A. Lazarev and

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ACCESSION NR: AP4033140

L. Bernshteyn for their help in carrying out measurements." Orig. art. has:
2 figures.

ASSOCIATION: none

SUBMITTED: 08May63

DATE ACQ: 11May64

ENCL: 00

SUB CODE: NP

NO REF SOV: 002

OTHER: 000

Card 2/2

USHAKOV, V.I.

Call Nr: TS 213.Z45

AUTHOR:

Zhetvin, N.P., Rakhovskaya, F.S., Ushakov, V.I.

TITLE:

Descaling of Metals (Udalenie okaliny s poverkhnosti metal) Methods Employed by the "Serp i Molot" Plant (Opyt zavoda "Serp i Molot")

PUB. DATA:

Gosudarstvennoye nauchno-tekhnicheskoye izdatel'stvo literatury po chernoy i tsvetnoy metallurgii, Moscow, 1957, 108 p., 4,000 copies

ORIG. AGENCY:

None given

EDITOR:

Ed.: Gamov, M.I.; Ed. of the Publishing House: Berlin, Ye.N.; Tech. Ed.: Attonovich, M.K.

PURPOSE:

This is a manual for engineers and foremen engaged in metallurgical and machine-building plants.

COVERAGE:

This book contains a description of the most advanced methods of descaling by acid and alkaline pickling, as well as of the electrolytic and the hydride method.

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Descaling of Metals (Cont.)

Call Nr: TS 213.245

The authors believe that the methods of pickling stainless austenitic Ni-Cr steels, semiferritic and ferritic high-chrome steels, and also of nickel and titanium alloys have as yet been insufficiently investigated and present many problems. They state that this book is an attempt to classify experiments in pickling and to show new approaches to this problem. Disadvantages and limitations of the acid pickling method are discussed. Experiments with sodium hydride methods are described. Methods of neutralizing and recovery of spent pickling solutions are also mentioned. There are numerous diagrams, tables, and chemical data. There are 29 references; of which 15 are Soviet, and 14 English.

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Descaling of Metals (Cont.)

Call Nr: TS 213.245

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AVAILABLE: Library of Congress
Card 3/3

USHAKOV, V.I.

AUTHOR: Slavkin, v.S.

SOV/130-58-7-35/35

TITLE: "Removing Scale from the Surface of Metal" (Udalenie
okaliny s poverkhnosti metalla) New Book by N.P. Zhetvin,
F.S. Rakhovskaya and V.I. Ushakov. Published in 1957
by Metallurgizdat.

PERIODICAL: Metallurg, 1958, nr 7, p 48 (USSR).

ABSTRACT: This is a review, on the whole favourable, of the
above book.

Card 1/1

1. Metals--Scale

USCOMM-DC-55404

S/133/62/000/006/012/015
A054/A127

AUTHORS: Zhetvin, N. P., Candidate of Technical Sciences, Rakhovskaya, F. S.,
Ushakov, V. I., Engineers

TITLE: Continuous electrolytic pickling of carbon steel and stainless steel
strip and wire

PERIODICAL: Stal', no. 6, 1962, 553 - 555

TEXT: At the "Serp i Molot" Plant on a special pilot installation the contactless electrolytic pickling of wires and strips was studied. 0X18H9 (OKh18N9), 1X18H9T (IKh18N9T), 1X18H11M (IKh18N11M), 3M991 (EI991), 3M349 (EI349) steel grades, moreover a nickel alloy, containing 0.06% C, 0.35% Mn, 0.65% Si, 0.007% S, 21% Cr, 2.5% Ti, 0.05% Cu, 0.9% Fe, 0.65% Al, 0.01% B, 0.01% Zr were tested. The wires made of the above grades were pickled on continuously operating equipment. The first, alkaline bath (at a temperature of 450 - 480°C) contained 100-% NaOH, in the acidic bath (at room temperature or 60 - 80°C) the following compositions were tested: A: 3% H₂SO₄ + 1% HNO₃; B: 10% H₂SO₄ + 3% NaCl; C: 3.25% H₂SO₄ + 5% Na₃PO₄. In the alkaline bath 1Kh18N9T steel sheets were ap-

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Continuous electrolytic pickling of...

plied instead of lead ones.. The pickling of a 1.6-mm diameter 1Kh18N9T steel wire at current densities of 34 - 42 a/dm² for 12 seconds yielded the optimum result, a bright, clean surface. When applying the possible maximum current density for the given conditions (42 a/dm²) a satisfactory surface was obtained in 9.6 seconds. Electrolyte C) gave results similar to A); electrolyte B) was unsatisfactory. Increasing the current density above 40 a/dm² did not accelerate the process: the required time could not be shortened under 12 seconds. The alkaline solution and electrolytes A) and C) can also be applied in pickling carbon steel wire. In that case, at a current density of 15 - 18 a/dm² the output of the process increases by a factor of 1.6 - 1.7 as compared with the continuous chemical process. The industrial-scale tests were carried out by setting 90-mm wide baths of 1Kh18N9T steel in the conventional thermal pickling equipment, filled with the following solutions:

Alkaline bath:	65% NaOH + 30% NaNO ₃ + 5% NaCl	at 460 - 470°C
Acidic bath:	18% H ₂ SO ₄ + 1% NaCl + 5% NaNO ₃	at 80 - 85°C
Bleaching bath:	8% HNO ₃	at room temperature

In pickling 3.6 mm diameter 0Kh18N9T and Kh18N11M steel wires, a clean, bright and scale-free surface was obtained at a rate of 10.5 m/min, (20 sec. in the al-

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Continuous electrolytic pickling of...

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kaline, 29 sec. in the acidic and 11 sec. in the bleaching bath). In the simultaneous pickling of 24 wires, at a rate of 20 ton/day, a generator power of 140 kw (51 v, 2,750 a) is required. In pickling stainless steel strips, (0.5 mm thick, 40 mm wide) in the pilot installation, the cathode and anode plates (0.6 mm long in the alkaline bath and 1 m long in the acidic bath) were set parallel to the movement of the strip. On account of the larger surface of the strip, the maximum current density was lowered to 12 - 15 a/dm². The strips tested were made of 1Kh18N9T, 1Kh18N9, 3M 432 (EI432), 3M 435 (EI435), X13H4Г9 (Kh13N4C9) and 1X13 (1Kh13) steel grades. In the alkaline bath 100-% NaOH (at 450°C), in the acidic bath solutions A) and C) (at 70°C) were tested. A satisfactory surface was obtained with these solutions, when keeping the strip 6 - 9 seconds in the alkaline bath and 9 - 15 seconds in the acidic one. As in currentless continuous chemical pickling - under industrial conditions - the pickling of the same strip requires 82 seconds, the electrolytic method increases the output of the process 3 - 4 times. For pickling strips 0.5 mm thick and 400 mm wide at a current density of 15 a/dm² and with electrode plates 7 m long, the generator power required will be 1,260 kw (150 v, 8,400 a). There is 1 figure.

ASSOCIATION: Zavod "Serp i molot" ("Serp i molot" Plant)

Card 3/3

L 42276-65 EPF(n)-2/EWP(z)/EWT(m)/EWP(b)/EWA(d)/EWP(t) Pu-4 IJP(c) JD/JG
 AM5009839 BOOK EXPLOITATION S/

Zhetvin, Nikita Petrovich; Rakhovskaya, Faina Samoylovna; Ushakov, Viktor
 Ivanovich

Removing scale from a metal surface (Udaleniye okaliny s poverkhnosti metalla)
 2d ed., rev. and enl. Moscow, Izd-vo Metallurgiya, 1964. 194 p. illus.,
 biblio. Errata slip inserted. 3090 copies printed. Editor of the publishing
 house: Ye. N. Berlin; Technical editor: R. Ya. Ginzburg

TOPIC TAGS: etching, scale removal, pickling, steel, titanium alloy, molybdenum
 alloy, corrosion cracking

PURPOSE AND COVERAGE: This book was intended for engineers and may be used also
 by foremen at metallurgical and machine-building plants. The experience of the
 "Serp i Volot" plant in etching carbon, stainless, and high-temperature steels and
 certain alloys (shapes, sheet, strip, and wire) is described. Information is pre-
 sented concerning the most modern methods of acid, alkali, hydride, and electroly-
 tic etching. This edition covers additional experimental work done at the plant
 from 1957 through 1962. The authors express their gratitude to V. S. Ledkov.

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SUB CODE: MM

SUBMITTED: 17Feb64

NR REF SOV:037

OTHER:028

CC
Card 2/2

USHAKOV, V.I., inzh.

Results of investigating the discharging of water in underground
pneumatic systems in mines under permafrost conditions. Izv.
vys. ucheb. zav.; gor. zhur. 7 no.5:110-114 '64. (MIRA 17:12)

1. Moskovskiy institut stali i splavov. Rekomendovana kafedroy
mekhanizatsii gornyykh rabot.

USHAKOV, V.I.

Topological locally nilpotent groups. Sib. mat. zhur. 6 no.3:581-595
(MIRA 18:8)
Mys-Je '65.

USHAKOV, V.I., inzh.; DUBROVINA, N.K., inzh.

Concerning A.I. Karabin's article "Is a terminal compressor cooler necessary?" Prom. energ. 19 no.12:29-32 D '64.

(MIRA 18:3)

1. Moskovskiy geologorazvedochnyy institut imeni Ordzhonikidze (for Ushakov).
2. Permskiy neftepererabatyvayushchiy institut (for Dubrovina).

L 03837-67 ENT(1) SCTB DD/GD

ACC NR: AT6036683

SOURCE CODE: UR/0000/66/000/000/0384/0385

AUTHOR: Chosalin, L. S.; Dmitriyev, N. Ye.; Gorbov, F. D.; Novikov, M. A.;
Ushakov, V. I. 32

ORG: none

TITLE: A device for studying interdependent group activity (two to eight operators)
Paper presented at the Conference on Problems of Space Medicine held in Moscow
from 24-27 May 1966

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy
kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii,
Moscow, 1966, 384-385

TOPIC TAGS: group dynamics, cosmonaut training, cosmonaut selection, space
psychology

ABSTRACT: In 1963, two of the authors described a device which could be used to
evaluate the behavior of a group of three men during interdependent
activity. It was shown that the device could reflect the activity of the
group with great accuracy and that evaluation results agreed with some
sociological tests despite its simplicity of design. Consequently, a device
which could evaluate the interdependent activity of a group of eight men

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L 08837-67

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was constructed. It consists of eight small, identical panels each consisting of a dial and potentiometer. The experimenter is provided with a large panel consisting of 8 dials which act as doubles of the individual ones. In addition, he has a device indicating the sum of the deviations of all the dials from zero. There are switches permitting exchange between all potentiometers and dials on a second section of the panel.

After standardizing an exchange coefficient, the experimenter feeds current to the subjects' dials. They in turn attempt to reset the dial on zero according to instruction. Each subject sees only his own dial which he himself can only manipulate. When interexchange coefficients are not equal to zero, the problem has an interdependent nature in that all remaining dials move, besides that of the individual subject; each individual dial reflects the disposition of all the potentiometers. This set-up is portable, fitting into two carrying cases and is powered by 4 batteries (40 mamp).

From preliminary experiments it was found that a number of basic situations common to a three-man group are not encountered in the larger, eight man group. The presence of a leader, or group of leaders is perhaps necessary. The device can be used to execute commands, break a group down into separate subgroups, and for a number of other experi-

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ments. It seemed desirable to construct special biorecording systems, which could be used in concert with this set-up.

Finally, a reference formula determining the dial reading on the i panel α_i ($i = 1, 2, \dots, v$) is given:

$$L_i = \sum_{k=1}^n a_{ik} x_k$$

Here, x_k is the deviation from zero of the potentiometer on the k panel and a_{ik} is the coefficient of the influence of the k potentiometer on the dial. The sum of indicator readings are:

$$\alpha_i = \sum_{k=1}^n \delta_k a_{ik} / a_i$$

Here δ_k equals zero or one and indicates the position of the additional switch on the panel, which permits the exclusion of some of the dials from the total. (W. A. No. 22; ATD Report 66-1167)

SUB CODE: 05 / SUBM DATE: 00May66

Card 3/3

KACHURIN, L.G.; TOLSTOBROV, B.Ya.; USHAKOV, V.M.; YALYNYCHEV, N.S.

Stationary automatically self-balancing thermoradiograph.
Trudy Len. gidromet. inst. no.15:161-170 '63.

Unbalanced field thermoradiograph. Ibid.:171-179
(MIRA 17:1)

USHAKOV, V. N.

USHAKOV, V. N.: "Measuring the velocity of the stream in a high-vacuum steam-oil pump". Moscow, 1955. Min Higher Education USSR. Moscow Engineering-Physics Inst. (Dissertation for the Degree of Candidate of TECHNICAL Sciences)

SO: Knizhnaya Letopis' No. 51. 10 December 1955

AUTHOR: Ushakov, V.N., Engineer

SOV/97-58-9-13/13

TITLE: ~~Determining~~ Geometrical Characteristics of Cross-sections of Pre-stressed Reinforced Concrete Elements (Opredeleniye geometricheskikh kharakteristik poperechnykh secheniy predvaritel'no napryazhennykh zhelezobetonnykh elementov)

PERIODICAL: Beton i Zhelezobeton, 1958, Nr 9, p 360 (USSR)

ABSTRACT: Whilst designing reinforced concrete constructions, it is often necessary to devise geometrical characteristics of the calculated cross-sectional forms. This article gives tables which should simplify and systematise these calculations. The given cross-sectional forms are first sub-divided into triangles and rectangles (Table 1). The sequence of the calculation is given in Table 1. After operations indicated in the above table, the centre of gravity is established and moment of inertia of the given section is found. Further calculation is carried out using formulae from "Instructions on Design of Pre-stressed Reinforced Constructions" (SN 10-57). There is a short example to illustrate the use of the table.

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SOV/97-58-9-13/13

Determining Geometrical Characteristics of Cross-sections of
Pre-stressed Reinforced Concrete Elements

Various formulae are given.
There are 2 tables and 2 figures.

Card 2/2

SOV/120-59-5-20/46

AUTHORS: Baryshova, N.M. and Ushakov, V.N.

TITLE: Measurement of the Velocity of the Stream Issuing from the Throttle of a High-vacuum Pump

PERIODICAL: Pribery i tekhnika eksperimenta, 1959, Nr 5, pp 94 - 98 (USSR)

ABSTRACT: The velocity of a gas stream issuing from a throttle can be measured by the method proposed by Rodin in 1950. In this method, an ionisation pulse is applied to the gas stream at a certain known cross-section. At another cross-section, the ions are "extracted" from the stream and the transit time between the ionising pulse and the test cross-section is determined. In this way, the velocity can be evaluated. A special experimental equipment, shown in Figure 1, based on the above principle, was constructed. The throttle 2 of the equipment is fixed to a special tube 3 which can slide horizontally inside another tube 1. At its other end, the tube 3 is terminated with a plug 4, having an aperture in the centre. The vapour to the tube and the throttle is

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introduced via a slot having a width of 10 mm and a length of 40 mm. The throttle can be horizontally displaced by means of a screw drive 5, which passes through the aperture in the plug. The position of the throttle is indicated by a calibrated scale. The temperature of the vapour is measured before the critical cross-section of the throttle by means of a copper-constantan thermocouple 8. During the measurements, the equipment is continuously evacuated to a pressure of 10^{-4} mm Hg. The equipment is fitted with an ion collector 12, which is in the form of a wire ring having a diameter of 24 mm. The plane of the collector is perpendicular to the axis of the throttle. The transit time of the ion cloud is measured oscillographically. The instant of the appearance of the ions at the collector is determined by determining the maximum current in the circuit of the collector. The measurements were carried out for a constant distance between the ionising electron beam 18 and the collector, the distance being 16 mm. The distance between the end of

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the throttle and the ionising beam was carried from 2.5 to 55 mm. The temperature of the vapour entering the critical cross-section of the throttle was kept constant and the measurements were effected at temperatures of 180, 190, 200 and 210 °C. The experimental results are illustrated in Figures 4 and 5. These illustrate the dependence of the gas velocity on the distance between the output end of the throttle and the ionising beam for various temperatures and various throttles. From the measurements, it is found that the method is suitable for the determination of the velocity of the oil-vapour stream issuing from the throttle of a high-vacuum pump. It was found that in the vicinity of the output end of the throttle, the velocity is substantially constant. This can be referred to as the "core" of the stream. The length of the core depends on the temperature of the vapour. The velocity in the core is 225 ± 25 m/sec over temperatures ranging from 180 - 220 °C; the velocity is independent of

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the expansion ratio of the throttle. Beyond the core, the velocity rapidly increases and reaches the value of 800 m/sec. The adiabatic coefficient could be determined from this velocity and it was found that for the vapours of the oil-type D1-A it was 1.04.

There are 5 figures, 1 table and 3 English references.

SUBMITTED: August 8, 1958 ✓

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(A) L 10993-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l)
 ACC NR: AP5028529 SOURCE CODE: UR/0286/65/000/020/0124/0124

INVENTOR: Smirnov, V. D.; Ushakov, V. N.; Spivak, M. A.; Gokhbaum, F. A.; Braylovskiy, M. I.; Astrova, T. I.

ORG: none

TITLE: Hydraulic cylinder for a high-capacity press. Class 58, No. 175823 [announced by Experimental Construction bureau of the central scientific research institute of building construction (Eksperimental'no-konstruktorskoye byuro tsentral'nogo nauchno-issledovatel' skogo instituta stroitel'nykh konstruksiy)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 124

TOPIC TAGS: press, hydraulic press, high capacity press, press cylinder, cylinder design

ABSTRACT: This Author Certificate introduces a hydraulic cylinder for a high-capacity press. The cylinder (see Fig. 1) consists of inner metal shell 1, encased in a reinforced-concrete housing. Expansion joint 2 separates top 3 and bottom 4 of the housing to reduce the internal stresses. Orig. art. has: 1 figure. [DV]

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L 10993-66

ACC NR: AP5028529

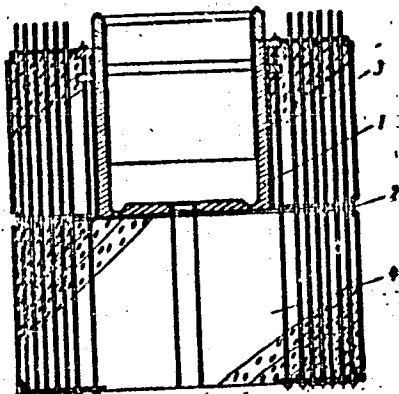


Fig. 1. Hydraulic cylinder

1 — metal shell; 2 — expansion joint;
3 — top of the housing; 4 — bottom of the
housing.

SUB CODE: 13/ SUBM DATE: 27May64/ ATD PRESS: 4174

BC
Card 2/2

USHAKOV, V. P.

Forests and Forestry.

Why the Dubravskaja forest conservation station did not fulfill the production plan. Les.khoz. no. 5, 1952.

9. Monthly List of Russian Accessions, Library of Congress, August 1953/2 Unclassified.

1. USHAKOV, V. P.
2. USSR (600)
4. Forests and Forestry
7. What is shown by analysis of the cost of growing a stand of trees. Les i step'
4, no. 10, 1952.

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Determining compressibility factors of undisturbed structural soils
thawing out under pressure. Trudy NII men.1 fund. no.26:38-52 '55.
(MLRA 9:8)

(Soil mechanics)

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Mean values of the specific weight of soils. Trudy NII osn.i fund.
no.26:92-98 '55. (MLRA 9:8)
(soil mechanics)

USHAKOV, V. S.

"High pile grillage in bridge piers." Thesis for
Degree of Cand. Technical Sci. Sub 7 Feb 50,
Moscow Order of Labor Red Banner Engineering
Construction Inst imeni V. V. Kuybyshev.

Summary 71, 4 Sep 52, Dissertations Presented
for Degrees in Science and Engineering in Moscow
In 1950. From Vechernyaya Moskva. Jan-Dec 1950.

USHAKOV, V.S.

BASS, M.G., inzhener; KARAGODIN, V.L., inzhener; MOLCHANOV, Yu.A., inzhener;
MALITSKIY, S.I., inzhener; KHAZANOV, V.Ye., inzhener; USHAKOV, V.S.,
inzhener.

Collector with driven in sheet-piled walls. Gor.khoz.Mosk. 31
no.9:38-40 S '57. (MIRA 10:9)
(Moscow--Sewers, Concrete)

USHAKOV, V.V.

Combined poisoning from arsenic and chromium. Sud.-med. ekspert.
3 no.1:58-59 Ja.-Mr '60. (MIRA 13:5)

1. Kafedra sudebnoy meditsiny (zav. - prof. V.M. Smol'yaninov)
- II Moskovskogo meditsinskogo instituta imeni N.I. Pirogova.
(ARSENIC POISONING) (CHROMIUM--TOXICOLOGY)

MEL'NIKOV, Yuriy Leonidovich; USHAKOV, Vasilii Vasil'yevich,
STOYANOV, B.G., rel.

[Clinical fundamentals of medicolegal expertise in
concussion of the brain] Klinicheskie osnovy sudobno-
meditsinskoi ekspertizy pri potrasenii mozga. Moskva,
Meditsina, 1974. 134 p. (NINA 17:0)

USHAKOV, V.V.

State of expertise on the fertilization capacity in males.
Sud.-med.ekspert. 7 no. 2:33-36 Ap-Je '64. (MIRA 17:7)

1. Kafedra sudebnoy meditsiny (zav.- dotsent A.A.Serdyukov)
Ryazanskogo meditsinskogo instituta imeni Pavlova.

KAS'YANOV, V.A. [Kas'ianov, V.O.]; USHAKOV, V.V.

Equations describing average turbulent motion for laminar
electrohydrodynamic flow. Dop. AN URSR no.11:1448-1451 '64.
(MIRA 18:1)

1. Kiyevskiy institut Grazhdanskogo vozdušnogo flota.
Predstavleno akademikom AN UkrSSR I.T. Shvetsom [Shvets', I.T.].

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A class of problems on motion. Mat. v shkole no.1:93-94 Ja-P '58.
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Results of fractures of the skull in children. Trudy Inst. 12.
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SMYSHLYAYEV, V.K. (Yoshkar-Ola); BAYTAL'SKIY, M.M. (Odessa); IVANOVA, Zh. (Vratsa, Bolgariya); USHAKOV, V.V. (Staryy Oskol); PRESMAN, A.A. (Sverdlovsk); LEVIN, M.N. (Tartu); BRIGADIN, I.Ya. (Moskva); LEVIN, M.I. (Tartu); KASHIN, B.I. (Kalininskaya obl.)

Problems for students. Mat. v shkole no.6:90-91 N-D '59 (MIRA 13:3)
(Mathematics--Problems, exercises, etc.)

MOVSESYAN, L.A. (Yerevan); KASHIN, B.I. (Ostashkov); USHAKOV, V.V. (Belgorodskaya
obl.); KHAMZIN, Kh.Kh. (Sterlitamak); CHERNYSHEVICH, I.V. (Kopyl');
PALATNIK, G.S. (Vinnitsa); LEYBMAN, M.R. (Sverdlovsk); PEVZNER, S.L.
Komsomol'sk-na-Amire)

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(Mathematics--Problems, exercises, etc.)

USHAKOV, V.V.

Extracurricular activities in physics. Fiz.v shkole 15 no.6:91-92
(MIRA 9:2)
H-D '55.

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(Physics--Study and teaching)

L6464-66 SWT(m)/T/EWA(m)-2
ACC NR: AP5025258

SOURCE CODE: UR/0386/65/002/004/0182/0185

AUTHOR: Ushakov, V. V. ¹⁹

ORG: Kharkov State University im. A. M. Gor'kiy (Khar'kovskiy gosudarstvennyy universitet)

TITLE: Concerning the difference between the muonic and electronic neutrino ¹⁹

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu (Prilozheniye), v. 2, no. 4, 1965, 182-185

TOPIC TAGS: neutrino, muon, meson, antineutrino, particle interaction

ABSTRACT: Since the main experimental support for the hypothesis that the muonic and electronic neutrinos are different is the absence of the $\mu \rightarrow e + \gamma$ decay, which must result from the $\mu \rightarrow e + \bar{\nu} + \nu$ interaction, the author considers two questions: 1) Has it been proved that a neutrino-antineutrino pair is emitted when the meson decays, and consequently that the lepton charges of the negative muon and the electron are equal? 2) Do the results of the CERN experiment (A. A. Mukhin, Experiments with High Energy Neutrinos, Voprosy fiziki elementarnykh chastits [Problems of Elementary Particle Physics], AN ArmSSR, Nor-Amberd, 1964) and the absence of the $\mu \rightarrow e + \gamma$ decay require the existence of two types of neutrinos? By citing presently available experimental data the author deduces on the basis of the spectrum of the μe transition, the probabilities of all the allowed decays, and the relative values of the various interaction constants that the conclusion that two identical neutrinos cannot be emitted in meson

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ACC NR: AP5025258

decay is not yet fully proved. With respect to the neutrino experiment performed at CERN, it is noted that since in this experiment approximately 100% of the neutrino-beam composition went into mesons and only 1% went into electrons, and since focusing of negatively charged particles in the magnetic horn would yield the reciprocal of this ratio, it is desirable, to check on the $\nu_\mu \neq \nu_e$ hypothesis, to perform an experiment with a proton target (hydrogen bubble chamber) in an antineutrino beam, when there should be no meson yield. Orig. art. has: 4 formulas.

SUB CODE: NP SUBM DATE: 21Jun65/ ORIG REF: 004/ OTH REF: 003

Card ^{nw} 2/2

ACCESSION NR: AP4031180

S/0056/64/046/004/1483/1484

AUTHOR: Klyucharev, A. P.; Ushakov, V. V.; Chursin, G. P.

TITLE: The reactions (n, 2n) on Sn-112 and Sn-124 and (n, p) on Sn-112 and Sn-117 at 14.1 MeV

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 4, 1964, 1483-1484

TOPIC TAGS: tin 112, tin 117, tin 124, neutron reaction, neutron scattering, magic number, isomeric transition

ABSTRACT: In analogy with the research of D. L. Allan (Nucl. Phys. v. 24, 274, 1961) on nuclei with the magic number $Z = 28$ protons, the authors compare the experimental results for (n, p) and (n, 2n) reactions with the theoretical ones in the case of $Z = 50$. The cross sections were measured by the method of induced β activity. The separation of the activities due to the (n, p) and (n, 2n) reactions on Sn^{112} was carried out analytically. The experimental accuracy is not worse than 20%. The calculated ratios of the cross section on the metastable level (σ_m) to the cross section on the ground level (σ_g) imply that $\sigma_m/\sigma_g = (2I_m + 1)/(2I_g + 1)$, where I_m and I_g are the spins of the corresponding levels. As can be seen from the

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table, Cameron's set of δ quantities (Can. J. Phys. v. 36, 1040, 1958) does not satisfy the experimentally obtained cross sections. This must be attributed to the influence of shell effects as well as of direct interactions (particularly for Sn^{117}). Orig. art. has: 1 table.

ASSOCIATION: None

SUBMITTED: 15Sep63

DATE ACQ: 07May64

ENCL: 01

SUB CODE: NP

NR REF SOV: 001

OTHER: 003

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ACCESSION NR: AP4031184

ENCLOSURE: 01

Реакция	$\sigma_{\text{вхп}}$ мбн	$\sigma_{\text{расч}}$ мбн	Данные других работ	$\frac{\sigma_{\text{вхп}}}{\sigma_{\text{расч}}}$	$\frac{\sigma_{\text{т/с}}}{\sigma_{\text{расч}}}$ расчет
$\text{Sn}^{112} (n, 2n) \text{Sn}^{111}$	1610	1660	$1500 \pm 7\% [4]^*$	1	
$\text{Sn}^{124} (n, 2n) \text{Sn}^{123g}$	900	450		2	3
$\text{Sn}^{112} (n, p) \text{In}^{111}$	145	35		4	3
$\text{Sn}^{112} (n, p) \text{In}^{112m}$	100	27			
$\text{Sn}^{117} (n, p) \text{In}^{117}$	23	2		11,5	

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